

WHAT IS CLAIMED IS:

1. A circuit for detecting light comprising:
 - a) a light-integrating photo-sensor circuit having one or more thin-film photosensors and being responsive to a variable integration period signal and to ambient light for producing a photo signal representing the intensity of the ambient light, wherein the photo signal may be in one of at least three states including a no-signal state, an in-range state, and a saturated state; and
 - b) a control circuit for receiving the photo signal and automatically increasing the period of the integration period signal when the photo signal is in the no-signal state and decreasing the period of the integration period signal when the photo signal is in the saturated state so as to result in the photo signal being in the in-range state and producing a corresponding ambient light signal.
2. The circuit claimed in claim 1, wherein the photosensor is a photodiode.
3. The circuit claimed in claim 1, wherein the photosensor is a photo capacitor.
4. The circuit claimed in claim 1, wherein the photosensor is a phototransistor.
5. The circuit claimed in claim 1, wherein the photosensor is an organic photosensor.
6. The circuit claimed in claim 1, wherein the photosensor is a silicon photosensor.
7. The circuit claimed in claim 1, wherein the photo-signal states are represented by digital signals.

8. The circuit claimed in claim 1, wherein the photo-signal states are represented by analog signals.

9. The circuit claimed in claim 1, wherein the value of the integration period signal is stored as a digital value.

10. The circuit claimed in claim 1, wherein the integration period signal is generated by a digital counter.

11. The circuit claimed in claim 1 further comprising a plurality of photosensor circuits producing a plurality of respective photo signals and wherein the control circuit is responsive to the plurality of photo signals.

12. A flat-panel display, comprising

a) a substrate and a plurality of light-emitting elements located thereon in a display area; and

b) a circuit for detecting light incident on the flat-panel display comprising:

i) a light-integrating photo-sensor circuit having one or more thin-film photosensors located on the substrate and being responsive to a variable integration period signal and to ambient light for producing a photo signal representing the intensity of the ambient light incident on the flat-panel display, wherein the photo signal may be in one of at least three states including a no-signal state, an in-range state, and a saturated state; and

ii) a control circuit for receiving the photo signal and automatically increasing the period of the integration period signal when the photo signal is in the no-signal state and decreasing the period of the integration period signal when the photo signal is in the saturated state so as to result in the photo signal being in the in-range state and producing a corresponding ambient light signal.

13. The circuit claimed in claim 12, wherein the photosensor circuit includes a detector circuit and wherein the detector circuit and/or the control circuit is a thin-film device located on the substrate.

14. The circuit claimed in claim 12, wherein the photosensor circuit includes a detector circuit and wherein the detector circuit and/or the control circuit are located externally to the substrate.

15. The flat-panel display claimed in claim 12, wherein the display area is rectangular and the photosensor is located at an edge or a corner of the rectangular display area.

16. The display claimed in claim 12, wherein the light emitting elements are organic light emitting diodes.

17. The display claimed in claim 12 further comprising a plurality of photosensor circuits producing a plurality of respective photo signals and wherein the control circuit is responsive to the plurality of photo signals.

18. A method for controlling a flat-panel display, comprising:

- a) providing a flat-panel display comprising a substrate and a plurality of light-emitting elements located thereon in a display area;
- b) providing a light-integrating photo-sensor circuit having one or more thin-film photosensors located on the substrate and responding to a variable integration period signal and to ambient light for producing a photo signal representing the intensity of the ambient light incident on the flat-panel display, wherein the photo signal may be in one of at least three states including a no-signal state, an in-range state, and a saturated state;
- c) iteratively receiving the photo signal and automatically increasing the period of the integration signal when the photo signal is in the no-

signal state and decreasing the period of the integration signal when the photo signal is in the saturated state so as to result in the photo signal being in the in-range state and producing a corresponding ambient light signal; and

d) adjusting the brightness of the flat-panel display in response to the ambient light signal.